Best Practices for running Buffalo Technology iSCSI platforms on VMware vSphere

Summary of steps you should take to insure that you have a trouble free setup:

- Make sure that you have unique names for all your LUN's. This is required if you have more than one iSCSI unit or the additional LUN's will not be recognized by ESX.
- For each LUN that you make, set the Maximum Connections field in Advanced Settings to the total number of ESX servers that will be attached to the LUN. Example: For 5 servers, set Maximum Connections to 5.
- Make all of your arrays' LVM/LUN configurations in the TeraStation before attaching them to your ESX server. Once they are made, you cannot change them due to a limitation in the current firmware 1.32 / 1.40. Making a change after connecting to the ESX server requires rebuilding the arrays and losing all data.
- Our iSCSI units are best connected to your environment with only LAN 1 plugged into your switch. Do not use LAN 2 as your only connection to the host server. Our units do not support a network failover configuration.
- Before making changes to your iSCSI TS's settings, first stop the iSCSI service in the TeraStation Web Administrator interface. Do not stop the iSCSI service if the unit is actively being used with your ESX server.
- Change the time zone to your local zone.

Simple Configuration (one ESX server and one TS III iSCSI of 4 TB capacity or less)

Requirements:

OS: VMware ESX 4.0, 4.1

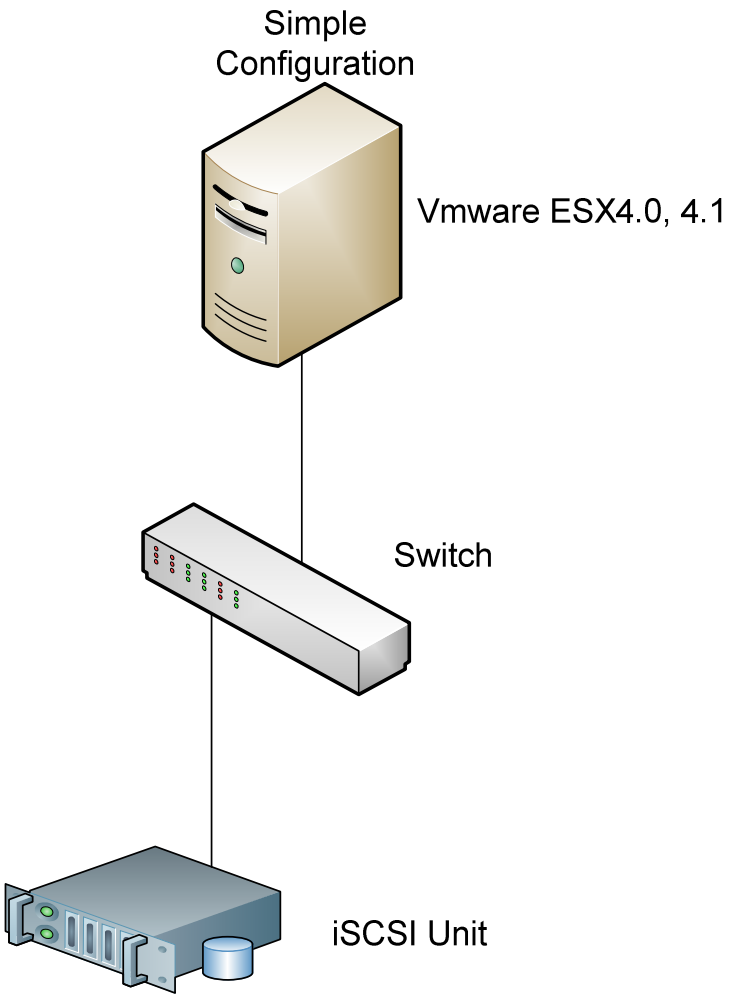
iSCSI Firmware: 1.32 or greater

Recommend array configurations:

These are the most common ways to set up a unit with 4 TB or less of space.

Raw Capacity	RAID Level	Number of Arrays
2 TB	5	1
	0	1 or 2
	1	1 or 2
4 TB	5	1
	0	1 or 2
	1	1 or 2

Note: Max 4 TB unit / No LVM (If you need more than two LUNs use complex configuration)



The simple configuration method is easy to use and quick to configure. When you take the unit out of the box, configure it before connecting it to the VMware ESX server.

1. Make sure that the iSCSI Service is turned off.
2. Set the time to your time zone. NPT is recommended.
3. Hook up your UPS and configure it under Maintenance -> Power Management
4. VMware allows a maximum 2 TB LUN size, so remember this when you decide what disk and volume layout you want.
5. When all configurations are finished, turn the iSCSI Service back on.

Complex Configuration (two or more ESX servers or a TS III iSCSI with capacity greater than 4 TB)

Requirements:

OS: VMware ESX/ESXi 4.0, 4.1

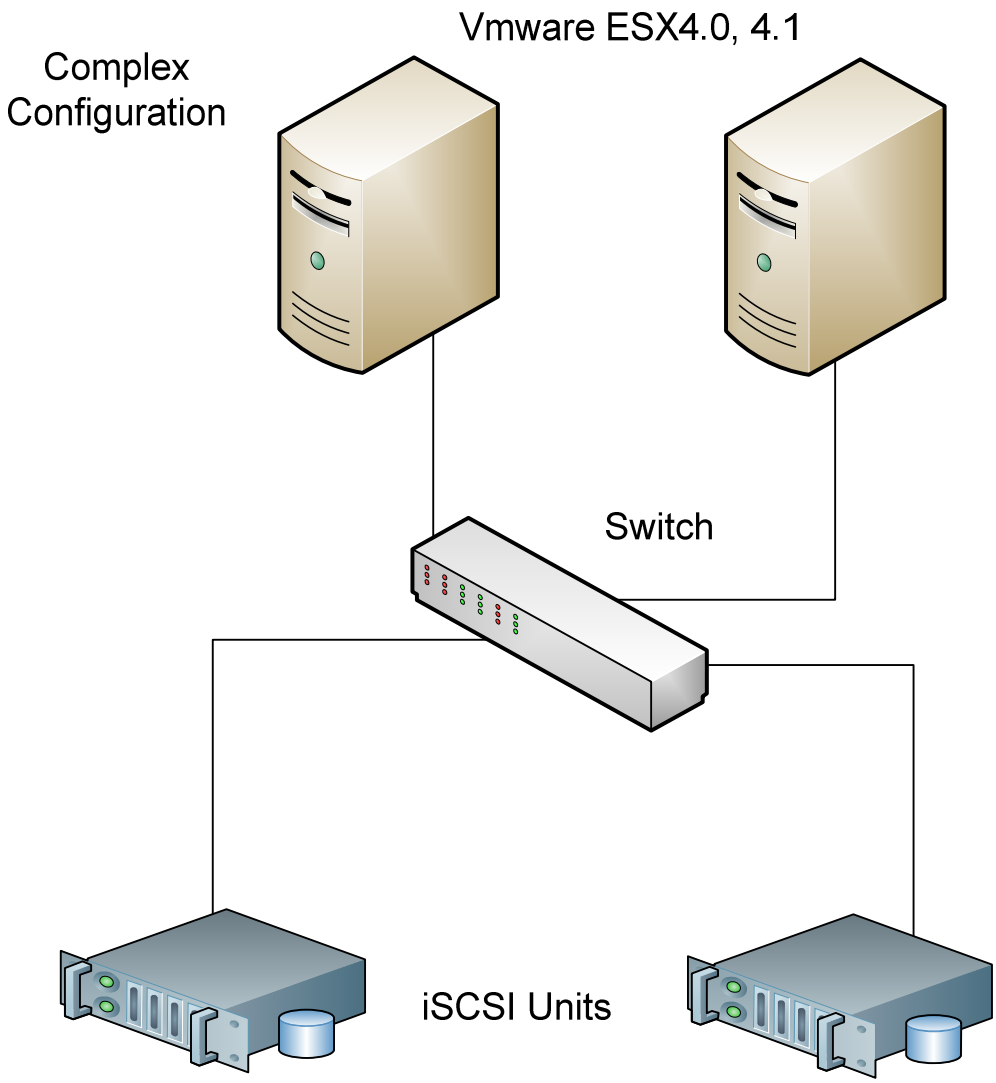
iSCSI Firmware: 1.32 or greater

Recommend array configurations:

These are the most common ways to set up a unit with 6 TB or more of space.

Raw Capacity	RAID Level	Number of Arrays
6 TB	5	1
	0	1 or 2
	1	2
8 TB	5	1
	0	1 or 2
	1	2

Note: For 6 TB or larger you must use LVM.



Starting up a system such as this will take more configuration than our simple setup. When you take the units out of the box, configure them before you connect them to the VMware servers.

1. Make sure that the iSCSI Service is turned off.
2. Set the time to your time zone.
3. Hook up your UPS and configure it in Maintenance -> Power Management.
4. Turn on the Logical Volume Manager.
5. Add your volumes. Please keep in mind these few points when you are making each volume:
    a. Make sure that each volume name is unique across all iSCSI units in your environment.

b. In advanced settings set to the number of servers you will be attaching these units to in the field “Max Connections”. The maximum number of servers that can be attached is 16.

c. Keep in mind that you are only allowed 32 Logical Volumes on the unit.

d. VMware allows a maximum 2 TB LUN size, so remember this when you decide what disk and volume layout you want.

6. After configuration is finished, turn the iSCSI Service back on.

Notes:

- Power up and power down sequence:
  - Please make sure that you power on the iSCSI units first before the ESX servers.
  - When powering down, shut down the ESX server first, then the iSCSI TS III units.
  - Never disconnect the LAN cable while the system is active.
- Buffalo Technology strongly recommends connecting your iSCSI TeraStation to UPS power. We recommend the APC Smart-UPS models. Runtime should be configured to exceed the runtime of the ESX server to prevent the storage array powering down before the server.